

REMARKS

This paper is responsive to the Office Action mailed April 13, 2009. In the present Amendments to the claims, claim 1 has been amended. Claims 2 and 4-21 remain cancelled. Thus, upon entry of this Amendment, claims 1 and 3 will be pending, of which claim 1 is independent. Applicants note that no new matter has been added. Support for the amendment in claim 1 can be found throughout the specification, for example, in paragraph [0023] on page 12 of the specification. Thus, Applicants submit that no new matter has been introduced by the present amendments and respectfully request entry of the amendments.

Formal Matters

Applicants note with appreciation that the Office Action Summary Sheet indicates that Examiner has considered the Information Disclosure Statement filed March 6, 2009.

Claim Rejections - 35 U.S.C. § 103

The Office Action rejects claims 1 and 3 under 35 U.S.C. § 103(a) as being unpatentable over Aga (U.S. 6,884,696) in view of Kikuchi (US 5,753,353) and Toshiro (JP 05-226620).

The Office asserts that Aga teaches all the features of the claims but fails to teach 1) the supporting wafer comprising boron in an amount of 9×10^{18} atoms/cm³ or more, and 2) forming a rear surface insulating film on one surface opposite to the bonding surface of said supporting wafer prior to said bonding (see Office Action, paragraph bridging pages 3 and 4). In order to cure the first deficiency, the Office asserts that modifying Aga in view of Kikuchi, which allegedly discloses a supporting wafer comprising boron in an amount of not less than 1×10^{17} atoms/cm³, would render the recited amount of boron obvious. Applicants respectfully disagree.

More specifically, Applicants respectfully submit that one of ordinary skill would not combine Aga with Kikuchi. To establish a *prima facie* case of obviousness, there must be some suggestion or reason, either in the documents themselves or in the knowledge generally available

to one of ordinary skill in the art, to modify the reference or to combine reference teachings.¹ Applicants respectfully note that no proper combination of Aga with Kikuchi has been made. Applicants respectfully submit that there is no teaching or suggestion in Aga that would provide one of ordinary skill in the art with a reason to have boron in the wafer disclosed by Aga. In fact, Applicants respectfully submit that boron is not even mentioned in Aga. In the absence of a suggestion that would prompt one of ordinary skill to have boron in the wafer taught by Aga, there can be no reason to combine Aga with Kikuchi. The Office is merely combining isolated disclosures to arrive at Applicants' invention using hindsight reasoning. Accordingly, the combination of these documents is improper and for at least this reason, the rejection should be withdrawn.

With respect to the second deficiency, the Office asserts that modifying Aga in view of Toshiro, which allegedly discloses forming a rear surface oxide insulating film on a surface opposite to the bonding surface of the supporting wafer prior to bonding, would render the presently claimed invention obvious.

In addition to Applicants remarks regarding the propriety of the combination of Aga and Kikuchi and in view of the present amendment, Applicants respectfully submit that the cited documents fail to disclose or suggest:

A manufacturing method of an SOI wafer, comprising:

preparing a supporting wafer comprising boron in an amount of 9×10^{18} atoms/cm³ or more;

forming an insulating film having a thickness of 0.1~0.5 μm on at least a surface opposite to a bonding surface of said supporting wafer;

ion-implanting hydrogen gas or a noble gas element to an active layer wafer to thereby form an ion-implanted layer in said active layer wafer;
bonding said active layer wafer with a the other surface of said supporting wafer

¹ While the KSR court rejected a rigid application of the teaching, suggestion, or motivation ("TSM") test in an obviousness inquiry, the [Supreme] Court acknowledged the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does" in an obviousness determination. *Takeda Chemical Industries, Ltd. v. Alphapharm Pty., Ltd.*, 492 F.3d 1350, 1356-1357 (Fed. Cir. 2007) (quoting *KSR International Co. v. Teleflex Inc.*, --- U.S. ---, 127 S.Ct. 1727, 1731 (2007)).

via an insulating film interposed therebetween to thereby form a bonded wafer;
and then

heat treating said bonded wafer to thereby induce cleavage in a portion of
said bonded wafer at the site of the ion-implanted layer as an interface to thereby
form an SOI layer with said remaining active layer wafer for manufacturing said
SOI wafer.

Even assuming, for the sake of argument, that the combination of the cited documents is
proper, the combined documents do not teach or suggest all the claim limitations. Applicants
respectfully request that for this reason also the obviousness rejection be withdrawn,

CONCLUSION

For all the above reasons, it is respectfully submitted that all pending claims are
patentable over the documents employed in the rejections of record. Applicants request
reconsideration and withdrawal of the rejections of record. Allowance of the application with an
early mailing date of the Notices of Allowance and Allowability is therefore respectfully
requested.

If there should be any questions, the Examiner is invited to contact the undersigned at the
telephone number listed below.

Respectfully Submitted,
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